CLINICAL REPORT.

I. COMPLETE SECTION OF THE VAS DEFERENS, END-TO-END UNION.

II. ACUTE SUPPURATION OF KNEE-JOINT; OPEN TREATMENT.

III. GASTRO-ENTEROSTOMY BY THE MURPHY BUTTON; ANASTOMOSES BY THIS METHOD.

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CASE I. *Complete Section of the Vas Deferens; End-to-End Union by a Simple Method which might be applied to a Divided Ureter.*

M. E. N., Norwegian, male, aged twenty-two, was admitted to St. Mary's Hospital July 27, 1894, with the following history: Patient had suffered for three years from a large varicocele of the left side. Six weeks before admission he received a severe kick in which the tissues of the cord were badly injured.

When admitted there was a painful enlargement of considerable size, involving the whole of the structure of the cord separated by a space of an inch from the testicle below, which was somewhat enlarged. Operation, July 30, 1894. Free incision revealed a mass of injured veins with an acute angle in the vas deferens, which had been lacerated and was occluded. Complete resection of the cord was made, including one and a half inches of the vas deferens. The cord, exclusive of the vas deferens, was treated by ligation of the stumps with catgut and knotting of the ligatures together, thus raising the testicle to a higher level. A round intestine-needle was then threaded with a strand of number four catgut, and pushed into the lumen of the lower end of the severed vas deferens about three-fourths of an inch, and turned out through its wall laterally, drawing the catgut through. The needle was unthreaded and rethreaded upon the opposite end of the catgut, and this was carried up the upper end of the vas deferens three-fourths of an inch, and turned out through its lateral wall. The two ends of the divided vas deferens were now slipped together along this internal splint like beads on a string until they met end to end. Knots were tied on the catgut at each point of emergence from the vas deferens to form a shoulder and prevent slipping with separation. The wound was closed without drainage, and healed promptly. Patient was discharged in eighteen days, with testicle in normal condition. Re-examined one month later, and result found perfect.

The union of a divided vas deferens has seldom been successfully accomplished, and the conditions to be confronted are very similar to the union of a divided ureter.

The use of an absorbable internal splint like catgut, which does not completely fill its lumen and cause obstruction, has much to commend it, being simple and easy of execution, bringing the ends together without shortening, and in their normal relations.

In making the suggestion that this method might be carried out in a divided ureter, we are well aware that by the labors of Fenger, Van Hook, Küster, and Kelly we have several good methods of securing union of a divided ureter. The ingenious and most excellent method of Van Hook, which has the largest application, causes some shortening, and where a portion of the ureter had been removed might be impossible. In the brilliant case reported by Howard Kelly the ureter was much dilated, and was especially suited to this method, which under normal conditions is not always easy to carry out. The use of catgut, after the method described for union of the vas deferens, might be of service where other methods could not be accomplished, and would not sufficiently occlude the ureter to prevent free passage downward of urine, or it could be reinforced by external suture. Even should the union be but partial, and leakage take place, the experience of Fenger in leaving an incised ureter without suture to heal by granulation, and securing union without stricture, is certainly encouraging, and provision could be made for drainage, if necessary.

CASE II. *Acute Suppuration of the Knee-Joint; Treatment by Transverse Anterior Incision, Partial Dislocation and Dry-Gauze Packing.*—J. S., Bohemian, aged eight, was admitted to St. Mary's Hospital, July 22, 1894, with the following history: Three and a half weeks before admission the boy was accidentally wounded in the outer and upper part of the right knee by a scythe in the hands of his father. This injury was rapidly followed by fever and chills, and well-marked septic symptoms, and the thigh became very much swollen. Several abscesses in the neighborhood of the joint had been opened by the attending physician.

When admitted his condition was profoundly septic. Pulse 140; temperature 104° F. He was more or less delirious, and suffering great pain. The knee was swollen, and on pressure exuded pus at the site of the original puncture. There was a huge abscess in the thigh extending from the external condyle to the great trochanter, and one equally as large extended from the head of the tibia to the internal malleolus. In the face of such grave septicæmia amputation at the thigh seemed to promise the only hope.

July 23. Under ether anæsthesia a transverse incision was made across the anterior face of the joint, cutting the patella with a heavy knife, and opening the joint as for an excision. The tibia was partially dislocated forward, and the leg was flexed on the thigh, and a thorough gauze packing of the cavity was done. The upper and lower abscess cavities were treated by free incision and gauze packing.

After History.—The temperature and pulse rapidly fell to the normal. The wounds were treated by the dry-gauze packing, and when the joint was filled with protective granulations the bones were restored to their normal position and allowed to heal by granulation, with resulting cure in two months; the knee becoming firmly ankylosed.

Surgeons in hospital practice frequently meet with neglected cases of joint suppuration in which recovery with a movable joint is out of the question, and too frequently amputation must be resorted too as a life-saving measure.

Dividing the knee-joint cavity into spaces and treating suppuration by from four to six drainage-tubes, as recommended by Andrews and Gerster, suffice for some cases, and may be supplemented by a tube-drain through the popliteal space, as practised by Hartley and others, while Frederick Dennis and Roswell Park report cases successfully treated by continuous irrigation or immersion in weak antiseptic fluids, but in a considerable number of cases amputation or death results. The knee-joint cavity is a large lymph-space and absorption is most active and general sepsis is quickly produced, while the nature of the cavity is such as to prevent thorough drainage so long as the joint surfaces are left in contact.

Free exposure by the ordinary incisions for excisions permits of the thorough application of dry-gauze packing and complete obliteration of the pockets.

CASE III.—*Gastro-Enterostomy by Means of the "Murphy Button," with Table of Late Cases of Anastomoses by this Method.*—A. A., Norwegian, male, aged seventy, was admitted to St. Mary's Hospital, August 2, 1894, with the following history: Patient had been an unusually robust man until three months before admission; he then began to suffer from a moderate amount of gastric distress, but not of serious nature until one month previous when he began vomiting, at first food, later a coffee-ground material; his bowels were obstinately constipated, emaciation being rapid from that time.

On examination, patient was found to have a chronic bronchitis with considerable expectoration. There was no tumor discoverable in the region of the stomach. Irrigation of the stomach gave no information further than that the stomach was markedly dilated. The vomit consisted of food taken, and partially digested blood. Examination of test meals showed the reaction to be feebly acid. Urine contained neither albumen nor peptones. August 4, 1894.—The stomach was carefully washed out and ether administered. A transverse incision five inches in length was made and a cancerous obstruction of the pylorus was brought into view; enlarged glands could be plainly felt behind the malignant mass, and pylorectomy, which had been contemplated, was out of the question. The jejunum was then brought up and gastro-enterostomy performed by means of the large-size Murphy button and the incision closed. The time consumed was twenty minutes.

In spite of the fact that the stomach was supposed to be empty, vomiting took place during the anæsthesia, and some of the vomit was aspirated into the bronchial tubes. The patient was removed from the table breathing badly and requiring artificial respiration for some minutes.

After History.—Patient was nourished by rectal alimentation for three days ; vomiting of grumous material took place occasionally for thirty-six hours, then ceased and did not return. After the third day he was fed by the mouth in gradually-increasing quantities ; his bowels acted daily, and the relief was great, until death took place two weeks later. At no time did the abdominal condition give rise to anxiety, the wound healing promptly. The bronchitis developed into a well-marked aspiration pneumonia and death followed from this cause at the end of the second week. A post-mortem examination, made by Dr. Christopher Graham, pathologist to the hospital, revealed in the lungs the small and large bronchial tubes filled with purulent material, and pus exuded on section from numerous small abscesses.

Abdomen.—Incision healed. Carcinoma of pylorus completely obstructing its lumen with enlarged glands in the mesentery and lesser omentum. The gastro-intestinal union was so perfect as to appear like a normal opening ; on separation the line of union was firm, and but little, if any, thicker than the intestinal wall. The opening was clean cut and the different coats seemed to unite with little intervening cicatricial tissue, and, to our surprise, the opening was much larger than the button. The button was free, and while not yet passed was causing no obstruction, and would undoubtedly soon have been evacuated.

It is possible that the fatal broncho-pneumonia could have been prevented by chloroform anæsthesia, but certainly the result was a triumph for the button. Nearly a year and one-half ago we made a cholecystoenterostomy by means of the Murphy button in a man seventy-one years of age for relief of complete obstruction of the common duct ; the patient is alive and well at the present time. The ease, rapidity, and certainty with which the anastomosis was effected in these two cases have convinced us of the practical utility of this remarkable device. Through the kindness of Dr

Murphy we append herewith a tabulated statement of anastomoses made by means of the button since the complete list published in the *Medical Record,* May and June, 1894. It will be noted that in one of the fatal cases reported, where the stomach wall slipped out of the grasp of the button and leakage took place, that the smallest size button was used, which is not intended for this purpose, and is too small to grasp and hold the tissues. In addition to the list of cases published are a number which have not as yet been reported, among others being seven cases by Dr. Joseph Price, six of which were successful; adding these seven cases to the table, gives a total of forty-four cases in this supplementary report. It will be noted that in five of the nine fatal cases the anastomoses were made for malignant disease.

TABLE OF RECENT CASES OF INTESTINAL ANASTOMOSES IN WHICH THE "MURPHY BUTTON" HAS BEEN USED.

CHOLECYSTDUODENOSTOMIES FOR CHOLELITHIASIS.

No.	Date.	Publication.	Operator.	Diagnosis.	Operation.	Method.	Position.	RESULT.		Cause of Death	Remarks.
								R.	D.		
1	April 17, 1894.	Buf. Med. & Surg Journ., July, 1894.	Mynter.	Cholelithiasis. Enlarged G. B.	Cholecystduodenostomy.	Murphy-button.	S-S	1	.	. . . . . .	Rapid recovery. Button passed 22d day. 126 gall-stones.
2	March, 1894.	Not publ'd.	Bradley.	Obstruction common duct.	Cholecystduodenostomy.	Murphy-button.	"	.	1	Exhaustion 7th day.	Post-mortem. Profuse hæmorrhage from liver, where it had been torn during operation in freeing adhesions. Approximation perfect. Time for operation 40 minutes.
3	May, 1894.	"	"	Cholelithiasis. Dilation of G. B.	Cholecystduodenostomy.	Murphy-button.	"	1	.	. . . . . .	150 calculi. Button passed 40 days after operation.
4	Oct. 16, 1893	"	Ferguson.	Gall-stones.	Cholecystduodenostomy.	Murphy-button.	"	1	.	. . . . . .	Excellent recovery.
5	Feb. 22, 1894.	"	"	"	Cholecystduodenostomy.	Murphy-button.	"	1	.	. . . . . .	" "
6	March 23, 1894.	"	"	"	Cholecystduodenostomy.	Murphy-button.	"	1	.	. . . . . .	" "
7	May 16, 1894.	"	Parkhill.	"	Cholecystduodenostomy.	Murphy-button.	"	1	.	. . . . . .	Button passed 22d day. Convalescence uneventful.
8	July 26, 1894.	"	Burdick.	Cholelithiasis. Obstruction.	Cholecystduodenostomy.	Murphy-button.	"	1	.	. . . . . .	Button passed 14th day. Large calculus allowed to remain in choledochus.
9	Sept., 1894.	"	Murphy.	Cholelithiasis. Obstruction of cysticus.	Cholecystduodenostomy.	Murphy-button.	"	1	.	. . . . . .	Time for operation 20 minutes. Difficulty experienced in pressing large calculus from cystic duct back into gall-bladder. 60 calculi removed.

CHOLECYSTDUODENOSTOMIES ON MALIGNANT CASES.

No.	Date.	Publication.	Operator.	Diagnosis.	Operation.	Method.	Position.	R.	D.	Cause of Death	Remarks.
1	March, 1894.	Buf. Med & Surg. Journ., July, 1894.	Wiggin.	Stenosis of common duct.	Cholecystduodenostomy.	Murphy-button.	S-S	.	1	Prostration on 4th day.	No peritonitis. Perfect adhesions. Multiple carcinoma of pancreas and liver.
2	Feb. 2, 1894.	Not publ'd.	King.	Carcinoma of pancreas.	Cholecystduodenostomy.	Murphy-button.	"	.	1	. . . . . .	No peritonitis. Cholemic hæmorrhage from mucous surfaces of body.

TABLE OF RECENT CASES OF INTESTINAL ANASTOMOSES.—(Continued.)

RESECTION.—END-TO-END APPROXIMATION.

No.	Date.	Publication.	Operator.	Diagnosis.	Operation.	Method	Position.	RESULT.		Cause of Death.	Remarks.
								R.	D.		
15	Aug. 31, 1894.	Not publ'd.	Beck.	Carcinoma of cæcum.	Resection of cæcum.	Murphy-button.	L	1	.	. . . . . .	Ends of intestines sutured. Lateral anastomosis with button No. 3.
16	June 4, 1894.	"	Murphy.	Fæcal fistula.	Resection. End-to-end.	Murphy-button.	E-E	1	.	. . . . . .	Removed 25 inches of small intestine. Opening made by button in previous operation had dilated from 3½ up to 5 inches.
					SIDE-TO-SIDE ANASTOMOSES.						
1	July 7, 1894.	Not publ'd.	Wiggin.	(?)	Double anastomosis.	Murphy-button.	S-S	.	1	. . . . . .	Death 60 h after oper. from obstruction by adhesions of intestine in a sharp angle at seat of oper. producing obstruction. Line of union at both places perfect and barely visible. Pressure atrophy almost complete at seat of adhesion where adherent bowel protected line of union.
2	Aug. 16, 1894.	"	Meyer.	Fæcal fistula.	Ileo-colostomy.	Murphy-button.	"	1	.	. . . . . .	Oblong button used in this case, which passed on 10th day without pain or difficulty.
					GASTRO-ENTEROSTOMY.						
1	May 5, 1894.	Med. Week, Paris: No. 38, Vol II.	Quenu.	Epithelioma of stomach.	Gastro-jejunostomy.	Murphy-button.	L	1	.	. . . . . .	Time for operation, 1 hour, 55 minutes. Uneventful recovery. Up in 18 days. Great increase in weight.
2	Apl. 19, 1894.	Not publ'd.	Bressler.	Obstruction of pylorus.	Gastro enterostomy.	Murphy-button.	"	1	.	. . . . . .	Death 4 weeks later. Exhaustion. Button found at splenic flexure of colon retained by band of adhesion. No obstruction.
3	Aug. 13, 1894.	"	Mayo.	Carcinoma of pylorus.	Gastro-enterostomy.	Murphy-button.	"	1	.	. . . . . .	Death 14 days after. Broncho-pneumonia. Autopsy: Perfect union. Button liberated. Opening about twice as large as button.

TABLE OF RECENT CASES OF INTESTINAL ANASTOMOSES.—(Continued.)

RESECTION.—END-TO-END APPROXIMATION.

No.	Date.	Publication.	Operator.	Diagnosis.	Operation.	Method.	Position.	Result.		Cause of Death.	Remarks.
								R.	D.		
1	June 13, 1894.	Not publ'd.	Limonex.	Strangulated hernia.	Resec. End-to-end anastomosis.	Murphy-button.	E-E	1	.	. . . . . .	Button passed 18th day.
2	June 21, 1894.	"	Cochems.	Strangulated hernia.	Resec. End-to-end anastomosis.	Murphy-button.	"	1	.	. . . . . .	Resection of 26 inches, button passed 180 hours after operation.
3	June 15, 1894.	"	McCallum.	Strangulation of ileum.	Resec. End-to-end anastomosis.	Murphy-button.	"	1	.	. . . . . .	12 inches of ileum resected.
4	April 2, 1894.	"	Newton.	Neoplasm of mesentery.	Resec. End-to-end anastomosis.	Murphy-button.	"	1	.	. . . .	Buttons passed 14th day. (Small child.)
5	April 7, 1894.	N. Y. Med. Journ., Sep., 1894.	Dennis.	Strangulated hernia.	Resection of ileum.	Murphy-button.	"	1	.	. . . . .	Button passed 22 days after operation. Wound suppurated. Fæcal fistula which closed on 27th day.
6	May 12, 1894.	Not publ'd.	Meyer.	Intussusception. Myosarcoma.	Resection of ileum.	Murphy-button.	"	1	.	. . . . . .	Button passed 11 days after operation. Perfect recovery.
7	June 16, 1894.	"	"	In. obstruction. Intussusception. Sarcoma.	Resection of ascending colon 12 inches.	Murphy-button.	"	1	.	. . . . . .	Button passed 11 days after operation. Discharged July 24, 1894. Died of marasmus, August 14, 1894.
8	June 18, 1894.	N. Y. M. J., Sep., 1894.	Lilienthal.	Carcinoma transverse colon.	Resec. transverse colon 6 inches.	Murphy-button.	"	1	.	. . . . . .	1¾ inches (in diameter) button used. Passed 18th day without pain.
9	Nov. 11, 1893.	(?)	Ricketts.	Carcinoma of ileum obstruction.	Resection. End-to-end.	Murphy-button.	"	.	1	Shock. 10 hours.	Time for operation 10 minutes.
10	May 11, 1894.	Mathews. Med. Quart., July, 1894.	Outerbridge.	Carcinoma transverse colon.	Resection. End-to-end.	Murphy-button.	"	1	.	. . . . . .	Time for operation, 1 hour, 45 minutes. Several inches of transverse colon resected.
11	June 13, 1894.	Not publ'd.	Meyer.	Carcinoma of rectum.	Resection of rectum 8 inches. Kraske Rehn.	Murphy-button.	"	1	.	. . . . . .	Death July 22d. Gangrene of lower end of sigmoid with fæcal fistula above line of union, due to tension of meso-sigmoid. Button accomplished purpose admirably. Voided on 11th day.
12	June 7, 1894.	"	Cobb.	Syphilitic stricture.	Anastomosis around stricture.	Murphy-button.	"	1	.	. . . . . .	Died 14 days after. Pneumonia. Anastomosis perfect.
13	Feb. 27, 1894.	"	Ferguson.	Cancer of cæcum.	Extirpation of cæcum 14 inches.	Murphy-button.	E-S	1	.	. . . . . .	Patient died 4 weeks later of diarrhœa. Autopsy: Perfect approximation. Opening large as button. Diphtheritic colitis.
14	June 17, 1894.	"	Davis.	Penetrat. wound of abdomen. Lac. of bowel.	Resection. End-to-end.	Murphy-button.	E-E	.	1	Shock. 3 hours.	Never rallied from shock of injury.

TABLE OF RECENT CASES OF INTESTINAL ANASTOMOSES.—(Concluded.)

GASTRO-ENTEROSTOMY.

No.	Date.	Publication.	Operator.	Diagnosis.	Operation.	Method.	Position.	Result.		Cause of Death.	Remarks.
								R.	D.		
4	Aug. 6, 1894.	Not publ'd.	Meyer.	Malignant stricture of pylorus.	Gastro-enterostomy.	Murphy-button.	L	1	.	. . . . .	Rapid recovery. Discharged August 25, 1894
5	Aug. 23, 1894.	"	"	Carcinoma of pylorus.	Gastro-enterostomy.	Murphy-button.	"	1	.	. . . . .	Patient still in hospital doing well (September 6, 1894).
6	Apl. 20, 1894.	Buf. Med. & Surg. Journ., July, 1894.	Mynter.	Carcinoma of pylorus.	Gastro-enterostomy.	Murphy-button.	"	1	.	. . . . .	Vomiting ceased. Patient left hospital in three weeks.
7	May, 1894.	Buf. Med. & Surg. Journ., July, 1894.	"	Carcinoma of pylorus.	Gastro-enterostomy.	Murphy-button.	"	.	1	Exhaustion 12 hours.	. . . .
8	1894.	Buf. Med. & Surg. Journ., July, 1894.	"	Carcinoma of pylorus.	Gastro-enterostomy.	Murphy-button.	"	.	1	. . . . .	Smallest size button used which could not possibly grasp tissue and was never intended for that purpose. The wall of stomach slipped out of its embrace and allowed contents to escape. A running suture is not necessary, if proper size button is used. Large carcinoma of stomach.